

REMARKS

Entry of this amendment is respectfully requested.

Claims 20-39 were rejected under 35 U.S.C. §103(a) over Albrecht WO '058 in view of Hirata. Claims 20-39 were rejected under 35 U.S.C. §103(a) over US ;'517 in view of Hirata. Applicants respectfully traverse.

Hirata describes cement additives. In particular, Hirata discloses that the introduction of polyethylene glycol chains into the claimed copolymers leads to an especially high water reducing capability (column 5, lines 33-44).

However, an object of the present invention is based on improving early strength development. This is achieved by the provision of the inventive compositions. The effect is proven in the present application by experimental data (the Examiner's attention is drawn, e.g. page 22, Table 2). The inventive compositions show a considerably improved early strength after 6 hours and 8 hours compared to Comparative Example 1, as can be gathered from citation Albrecht et al. (cf. page 21, "Comparative Example", "high performance fluidizer (PCT/EP 00/02251 "). Similar data can be found for another sample size and storage temperature also in Table 3 of the present specification.

The fact that an improved early strength due to the longer side chains can be attained cannot be gathered from the teachings of Hirata, as Hirata only describes that water reduction increases the final strength of concrete. Particularly, Hirata describes that the final strength is increased by long side chains which does not mean that the early strength is automatically improved. The final strength of concrete is essentially influenced by less water. A higher water reduction as described in Hirata allows to save water at the same processability and thus makes it possible to improve the final strength. As already mentioned, the improvement of the early strength is not connected therewith.

The early strength is a kinetically determined parameter.

When used in concrete or cement, the fluidizer has a relative huge influence on the early strength. In contrast, the influence of different types of fluidizers with the same W/Z (water/binder) to the final strength is comparably low.

The influence of the fluidizer on the kinetically controlled hydration processes which is proven by experimental data according to the present application can, without being bound to any particular theory, be explained as follows:

a) PCEs with long side chains cover less surface and thus do not strongly reduce the dissolution rate of the cement compared to PCEs having short side chains.

b) PCEs with long side chains cover less surface and thus block less cement surface for the first step of the strength development, i.e., core formation of calcium silicate hydrate on surfaces.

c) PCEs having long side chains are contained in the pore solution in small amounts and complex, i.e. deactivate less calcium ions which are required for the formation of moisturizing calcium silicate hydrate in the manufacturing condition of the concrete.

In view of the foregoing, one of skill in the art would not have looked to the teachings of Hirata to solve the problem that was the objective of the present application, as described above. Thus, all obviousness rejections should be withdrawn.


For the same reasons, it is believed the obviousness-type double patenting rejection of claims 20-39 over the '517 patent in view of Hirata should be withdrawn.

In view of the foregoing, allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0624, under Order No. NY-HUBR-1298-US.

Respectfully submitted

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